

Appl. No. 10/725,697
Amdt. dated 08/02/2006

Attorney Docket No.: N1280-00320 (TSMC2003-1469)

Response to Office Action of May 5, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

1 1-28. (Cancelled)

1 29. (Currently Amended) A method for dicing a wafer having a base material with a
2 diamond structure, the method comprising:

3 forming one or more dies with at least one edge thereof at an offset angle from a
4 natural cleavage direction of the diamond structure with one or more protection
5 elements along at least one dicing line; and

6 dicing the wafer along the dicing line,

7 wherein the protection elements protect the dies from undesired cracking while
8 the wafer is being diced along the dicing line, the protection elements being one of
9 metal based elements formed on the wafer and dielectric elements formed on the wafer.

1 30 - 31. (Cancelled)

1 32. (Currently Amended) A method for dicing a wafer having a base material with a
2 diamond structure, the method comprising:

3 forming one or more dies with at least one edge thereof at an offset angle from a
4 natural cleavage direction of the diamond structure with one or more protection
5 elements along at least one dicing line; and

6 dicing the wafer along the dicing line,

7 wherein the protection elements protect the dies from undesired cracking while
8 the wafer is being diced along the dicing line and comprise ~~The method of claim 29~~
9 ~~wherein the protection elements are one or more recesses formed into the wafer that~~
10 are substantially leveled with a top surface of a die formed on the wafer.

1 33- 34. (Cancelled).

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1 35. (Currently Amended) A method for dicing a wafer having a base material with a
2 diamond structure, the method comprising:
3 forming one or more dies with at least one edge thereof at an offset angle from a
4 natural cleavage direction of the diamond structure with one or more protection
5 elements along at least one dicing line; and
6 dicing the wafer along the dicing line,
7 wherein the protection elements protect the dies from undesired cracking while
8 the wafer is being diced along the dicing line and comprise one or more recesses
9 formed into the wafer. ~~The method of claim 32 wherein the recesses are filled with one~~
10 or more organic materials for absorbing stress caused during the dicing.

1 36. (Original) The method of claim 29 wherein the die further includes one or
2 more protection elements at one or more predetermined locations on its periphery.

1 37. (Currently Amended) The method of claim ~~[[33]]~~ 29 wherein the protection
2 elements on the periphery are unconnected from a core circuitry of the die.

1 38. (Original) The method of claim 29 wherein the wafer is a {110} wafer and the natural
2 cleavage direction is the <100> direction.

1 39. (Original) The method of claim 29 wherein the wafer is a {100} wafer and the natural
2 cleavage direction is the <110> direction.

1 40- 53. (Cancelled)

1 54. (Newly Added) The method of claim 32 wherein the die further includes one or
2 more protection elements at one or more predetermined locations on its periphery.

1 55. (Newly Added) The method of claim 32 wherein the protection elements on the
2 periphery are unconnected from a core circuitry of the die.

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1 56. (Newly Added) The method of claim 32 wherein the wafer is a {110} wafer and the
2 natural cleavage direction is the <100> direction.

1 57. (Newly Added) The method of claim 32 wherein the wafer is a {100} wafer and the
2 natural cleavage direction is the <110> direction.

1 58. (Newly Added) The method of claim 35 wherein the die further includes one or
2 more protection elements at one or more predetermined locations on its periphery.

1 59. (Newly Added) The method of claim 35 wherein the protection elements on the
2 periphery are unconnected from a core circuitry of the die.

1 60. (Newly Added) The method of claim 35 wherein the wafer is a {110} wafer and the
2 natural cleavage direction is the <100> direction.

1 61. (Newly Added) The method of claim 35 wherein the wafer is a {100} wafer and the
2 natural cleavage direction is the <110> direction.